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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,384	11/29/2000	James M. Ziobro	D/A0125Q XER 2 0404	6573

7590 07/20/2004

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EXAMINER	
GOOD JOHNSON, MOTILEWA	

ART UNIT	PAPER NUMBER
2672	16

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/725,384	ZIOBRO, JAMES M.	
	Examiner	Art Unit	
	Motilewa A. Good-Johnson	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *14*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to the following communications: IDS, paper #4, filed 11/29/2000; Amendment A, filed 03/17/2003; Amendment B, filed 08/25/2003, IDS, paper #9, filed 10/23/2003; Amendment C, filed 02/18/2004; IDS, paper #14, filed 03/23/2004.

2. Claims 4-23 are pending in this application. Claims 4, 10 and 21 are independent claims. Claims 4-12, 14-18 and 21-23 have been amended.

3. The present title of this application is "Intelligent Color to Texture Converter" (as originally filed).

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/19/2004 has been entered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomizawa, U.S. Patent Number 6,088,137, "Specified Image-Area Extracting Method and Device", in view of Qian, U.S. Patent Number 6,516,100, "Method for Image Characterization using Color and Texture Statistics with Embedded Spatial Information".

Regarding claim 4, Tomizawa discloses a method for rendering an image described in a multi-color color space, (col. 7, lines 23-31) in a single-colorant color space (col. 6, lines 1-5, thick or thin group, black or white, col. 5, lines 31-47), the method comprising: collecting histogram information from the multi-color color space image (col. 7, lines 27-31) wherein bins within the histogram classify image pixels based on luminance information and hue information (col. 5, lines 7-35); classifying peaks within the histogram that have similar luminance as conflicting colors (col. 7, lines 32-35);

However, it is noted that Tomizawa fails to disclose applying at least one distinct spatial modulation to, and only to, at least one representative single colorant version of at least one of the conflicting colors, thereby ensuring that all single colorant versions of colors in the image are visually distinguishable from one another while minimizing distortions in a remainder of the single colorant version of the image.

Qian discloses applying at least one distinct spatial modulation (col. 3, lines 10-15) to, and only to, at least one representative single colorant version of at least one of the conflicting colors (col. 3, lines 40-45), thereby ensuring that all single colorant versions of colors in the image are visually distinguishable from one another while

minimizing distortions in a remainder of the single colorant version of the image. (col. 6, lines 15-29)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include applying a spatial modulation to one representative color of the conflicting color to avoid a color blob and to allow a user to distinguish image features.

Regarding claim 5, Tomizawa discloses before classifying, locating peaks within the histogram data. (col. 7, lines 32-35)

Regarding claim 6, Qian discloses applying spatial modulation further comprises associating a unique modulation to the single colorant versions of each of the conflicting colors. (figures 7 and 8)

Regarding claim 7, Qian discloses measuring a color distance between at least one pixel in the image and at least one conflicting color; and applying an attenuated spatial modulation to at least one pixel in the single colorant version of the image, the attenuation ranging from zero to one hundred percent of a reference modulation, the level of attenuation being a function of the measured color distance. (figure 8)

Regarding claim 8, Qian discloses applying an attenuated spatial modulation to at least one pixel in the single colorant version of the image, the attenuation ranging from zero to one hundred percent of a reference modulation . . . attenuation being a non-linear function of the measure color . . . (figure 8)

Regarding claim 9, Qian discloses applying an attenuated spatial modulation to at least one pixel in the image, the attenuation ranging form zero to one hundred

percent of a reference modulation, the level of attenuation being a linear function of the measure color distance. (figure 8)

7. Claims 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomizawa in view of Shay, US 5900886 A, "Display controller capable of accessing an external memory for gray scale modulation data".

Regarding claim 10, Tomizawa discloses an image processor operative to generate a single colorant version of a color image . . . comprising: an image analyzer operative to find and classify conflicting colors in the color image; (an input color-space discriminating portion, col. 7, lines 24-38, which prepares input color and extracts color components of a detected peak in a histogram for a color space)

However, it is noted that Tomizawa fails to disclose a gray scale modulator operative to add spatial modulations to single colorant versions of only the conflicting colors within the single colorant version of the color image.

Shay discloses a gray scale modulator (figure 9, element 58) operative to add spatial modulations to single colorant versions of only the conflicting colors within the single colorant version of the color image. (col. 8, lines 3-36)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include applying a spatial modulation to one representative color of the conflicting color to allow a user to distinguish between colors having a close correlation with luminance.

Regarding claim 11, Tomizawa discloses a histogram collector operative to classify pixels in the color image based on a characteristic that is also used to generate the single colorant version . . . (col. 4, lines 53-59)

Regarding claim 12, Tomizawa discloses a conflicting color detector operative to examine the histogram and find pixels that are similar with respect to the characteristic that is used to generate the single colorant version . . . (col. 7, lines 16-23)

Regarding claim 13, Tomizawa discloses a color relationship discriminator operative to receive conflicting color classification information from the image analyzer and color image pixel information . . . (col. 7, lines 23-31)

Regarding claim 14, Shay discloses a spatial modulation attenuator operative to attenuate a gray scale modulation based on the relationship between the color image pixel and the conflicting color. (col. 8, lines 13-18)

Regarding claim 15, Shay discloses a spatial modulation generator operative to generate a gray scale modulation for application to a single colorant version of a color. (col. 8, lines 13-18)

Regarding claim 16, Tomizawa discloses relationship between the conflicting color and the color image pixel comprises a color distance within a color space. (col. 5, lines 56-64)

Regarding claim 17, Tomizawa discloses relationship . . . pixel comprises a color distance within a perceptually uniform color space. (col. 4, lines 47-49, HSL color space, which Examiner interprets as a uniform color space)

Regarding claim 18, Tomizawa discloses relationship . . . pixel comprises a color distance within a CIELAB color space. (col. 5, lines 18-20, employing a usable equation for derive a value of hue, it is well known in the art that a CIELAB color space is a usable equation for deriving a hue value)

Regarding claim 19, image processor further comprises an image receiver. (col. 5, line 53, input video signal, which Examiner interprets as an image receiver)

Regarding claim 20, image receiver further comprises a xerographic printer. (col. 8, lines 29-30, providing a technical apparatus for practical use)

Regarding claims 21-23, they are rejected based upon similar rational as above claims 4-6 respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Motilewa Good-Johnson

Motilewa A. Good-Johnson
Examiner
Art Unit 2672

mgj